FIG.1

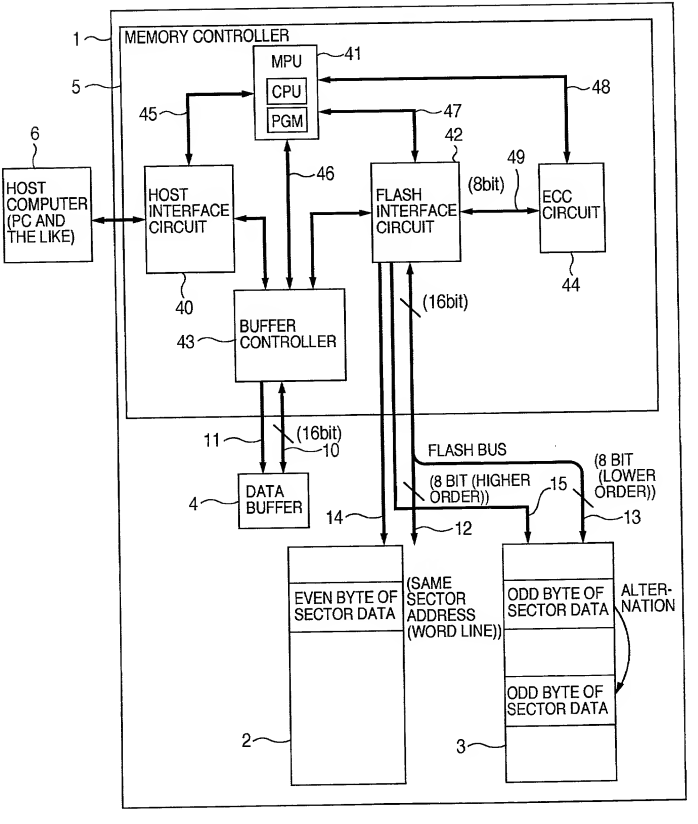

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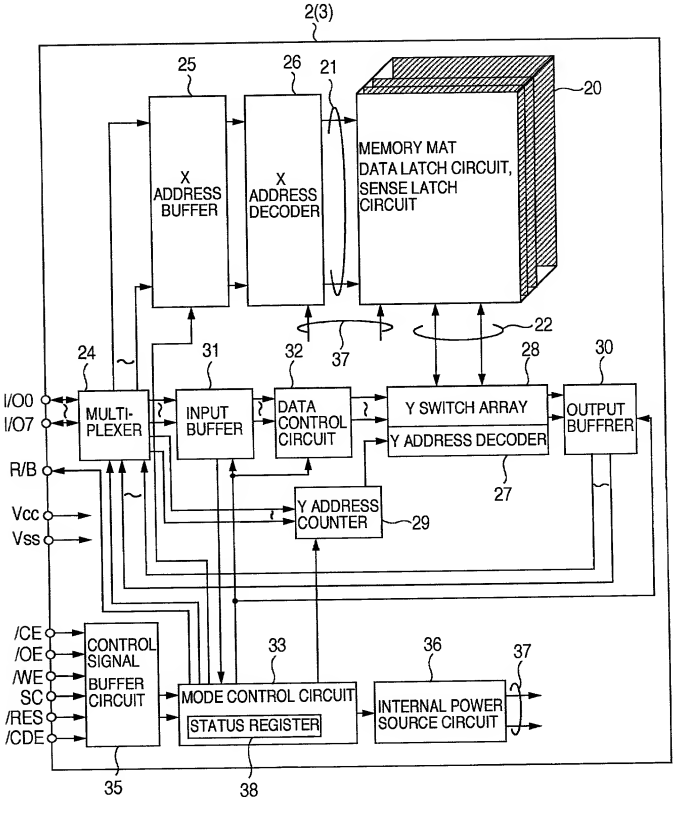
FIG.2



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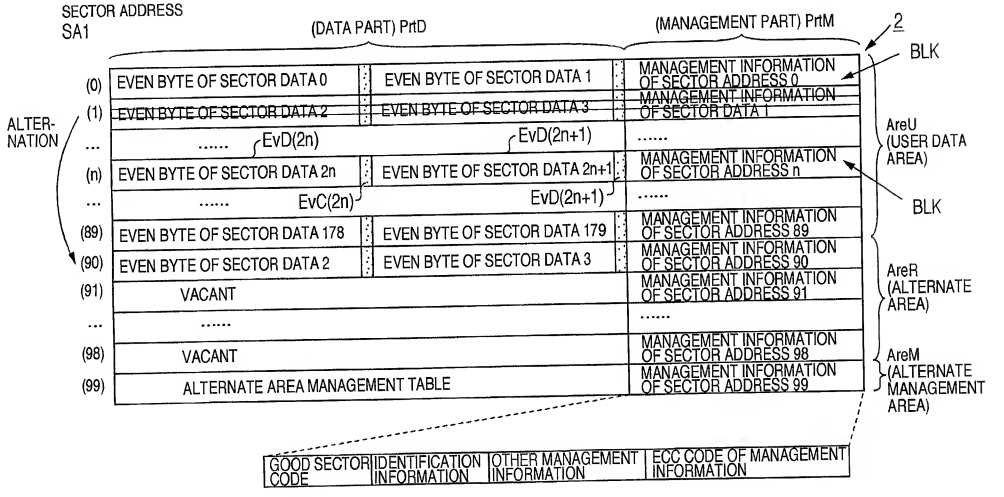
20220120358001

FIG.3



2072220 2056800

FIG.4

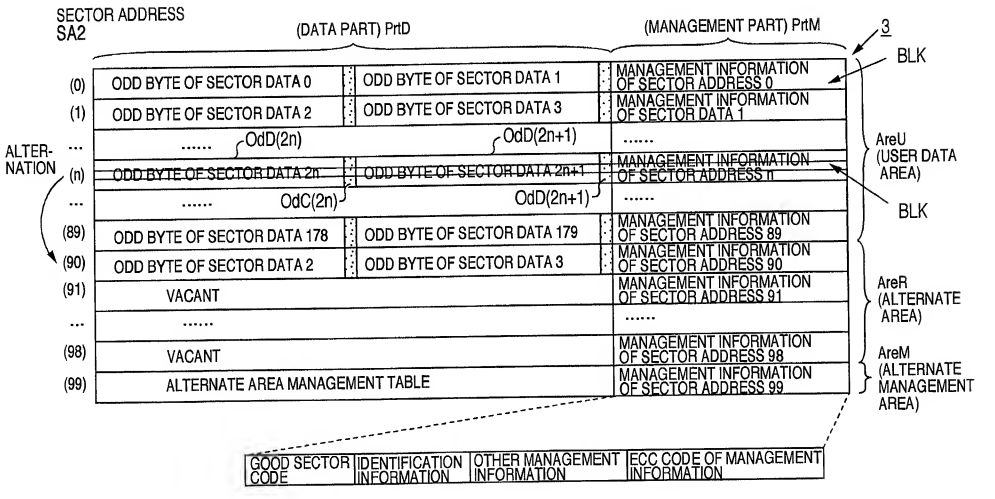
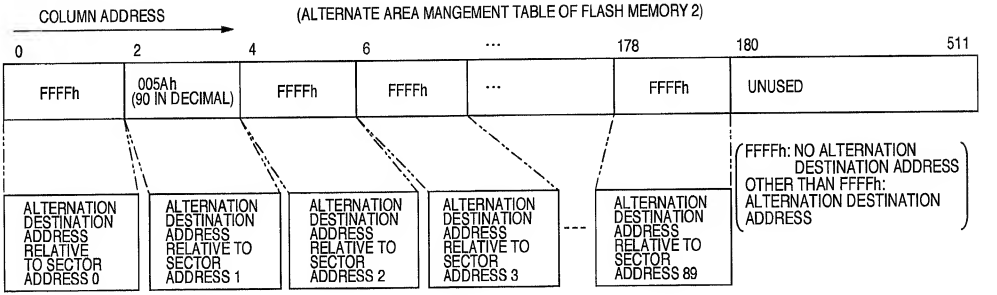


FIG.5


COLUMN ADDRESS
(ALTERNATE AREA MANGEMENT TABLE OF FLASH MEMORY 2)
0
2
4
6
...
178
180
511
FFFFh
005Ah
(90 IN DECIMAL)
FFFFh
FFFFh
...
FFFFh
UNUSED
FFFFh: NO ALTERNATION DESTINATION ADDRESS
OTHER THAN FFFFh: ALTERNATION DESTINATION ADDRESS
ALTERNATION DESTINATION ADDRESS RELATIVE TO SECTOR ADDRESS 0
ALTERNATION DESTINATION ADDRESS RELATIVE TO SECTOR ADDRESS 1
ALTERNATION DESTINATION ADDRESS RELATIVE TO SECTOR ADDRESS 2
ALTERNATION DESTINATION ADDRESS RELATIVE TO SECTOR ADDRESS 3
ALTERNATION DESTINATION ADDRESS RELATIVE TO SECTOR ADDRESS 89

2007220 2005850

FIG.6

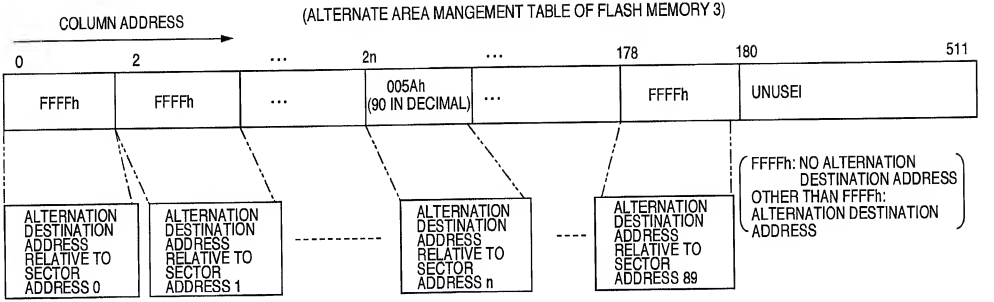


FIG.7

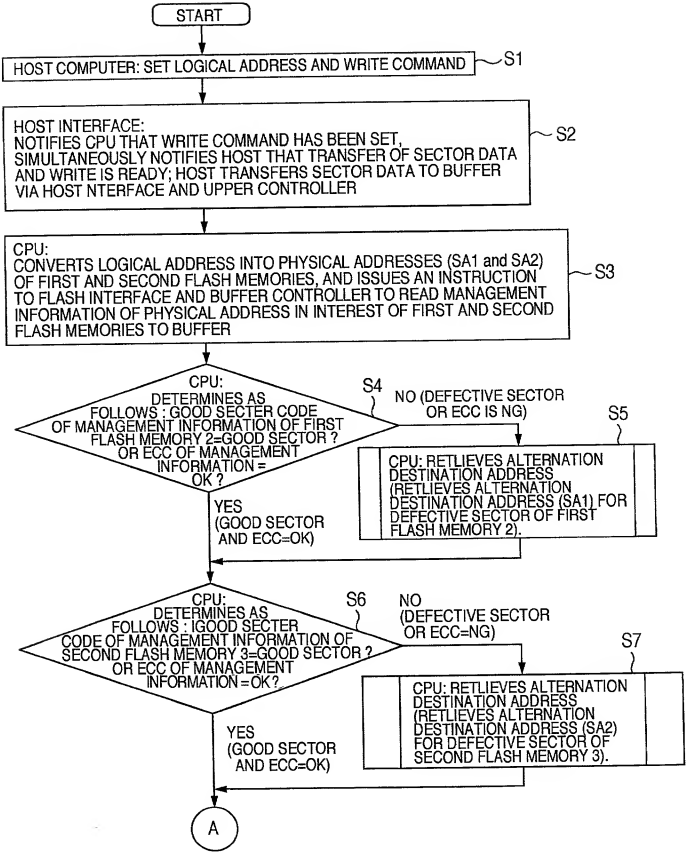


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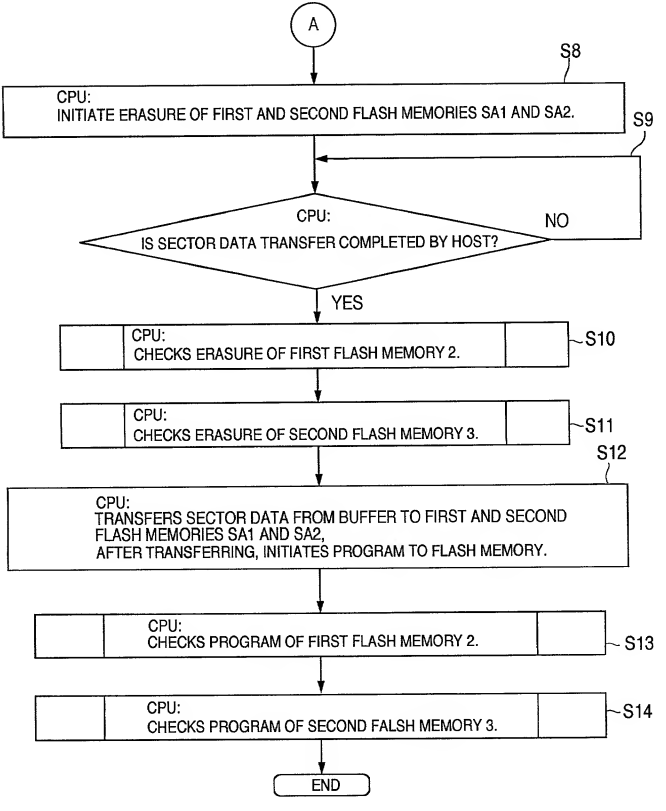
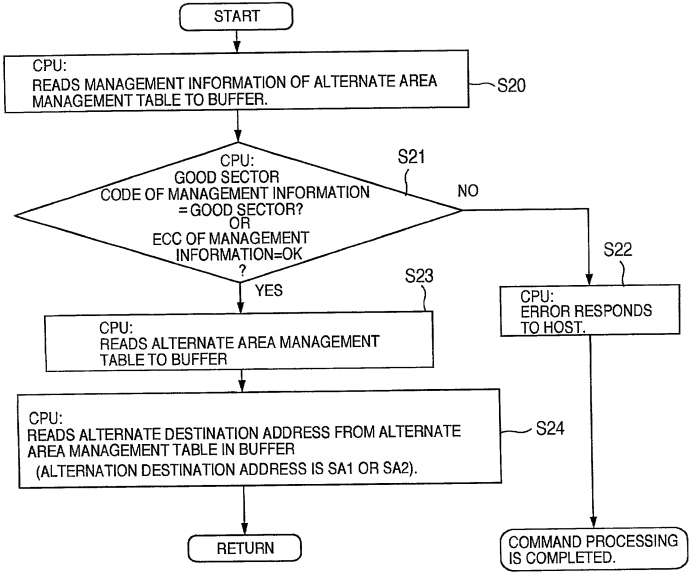
FIG.8



20220-0220702 10083802

FIG.9



1008350 2 022702

FIG.10

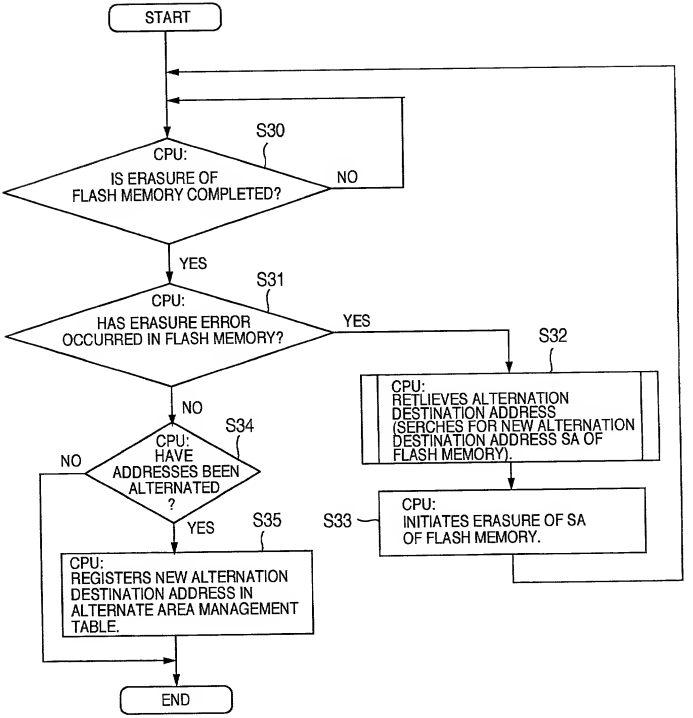

START
S30
CPU:
IS ERASURE OF
FLASH MEMORY COMPLETED?
NO
YES
S31
CPU:
HAS ERASURE ERROR
OCCURRED IN FLASH MEMORY?
YES
S32
CPU:
RETLIEVES ALTERNATION
DESTINATION ADDRESS
(SERCHES FOR NEW ALTERNATION
DESTINATION ADDRESS SA OF
FLASH MEMORY).
S33
CPU:
INITIATES ERASURE OF SA
OF FLASH MEMORY.
NO
S34
CPU:
HAVE
ADDRESSES BEEN
ALTERNATED
?
NO
YES
S35
CPU:
REGISTERS NEW ALTERNATION
DESTINATION ADDRESS IN
ALTERNATE AREA MANAGEMENT
TABLE.
END

FIG.11

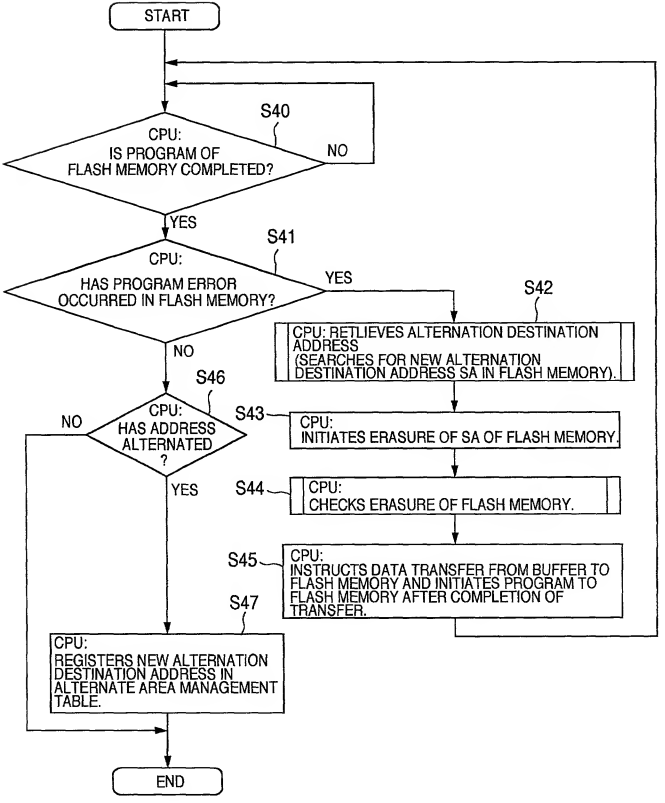


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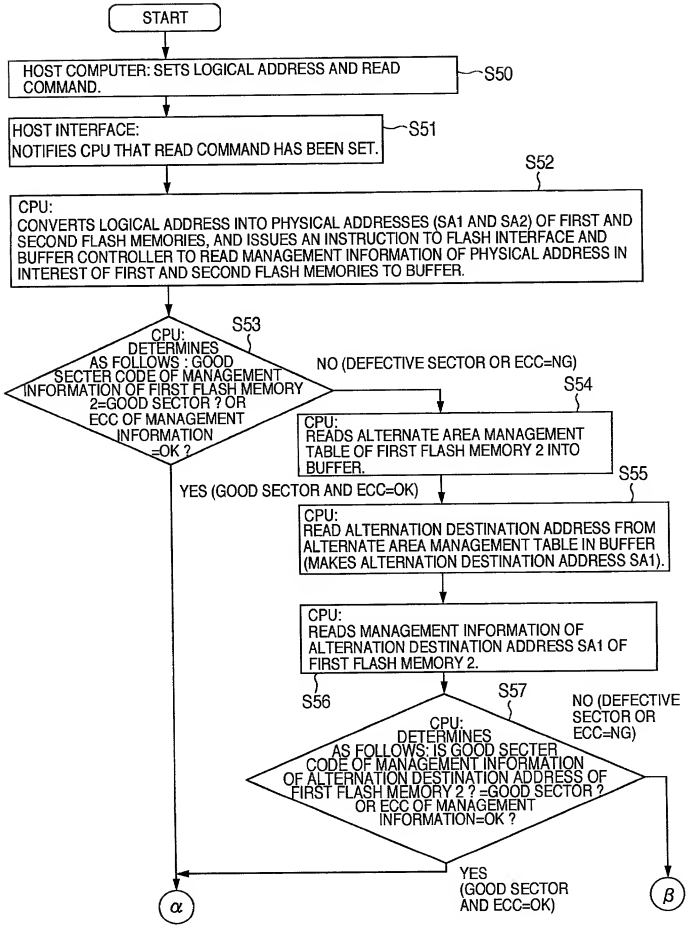
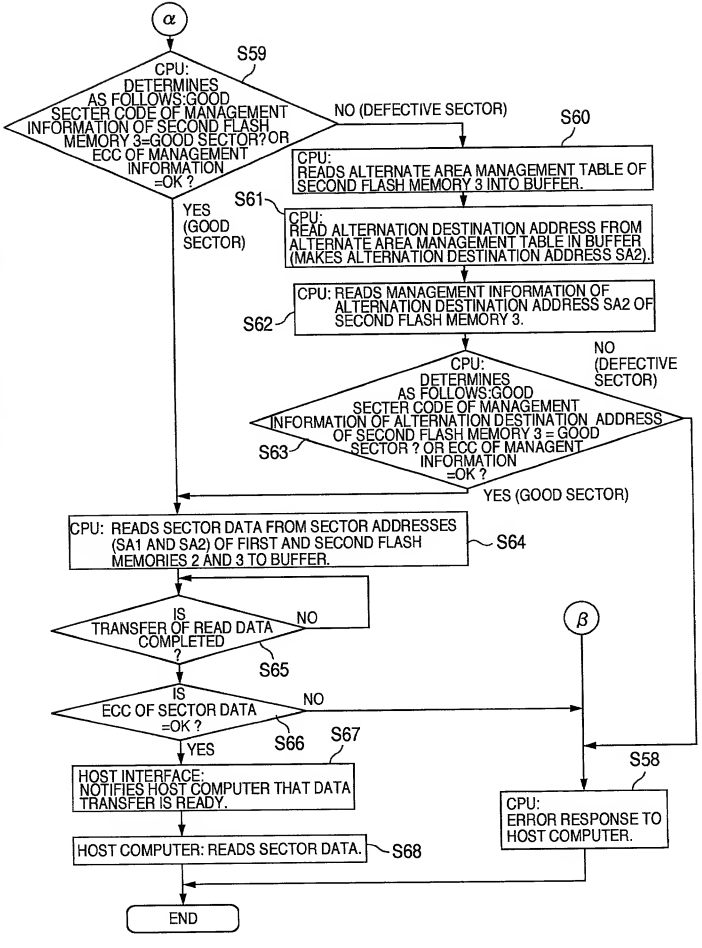
FIG.12



10033502-022702

FIG.13



1003502.022702

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FIG.14

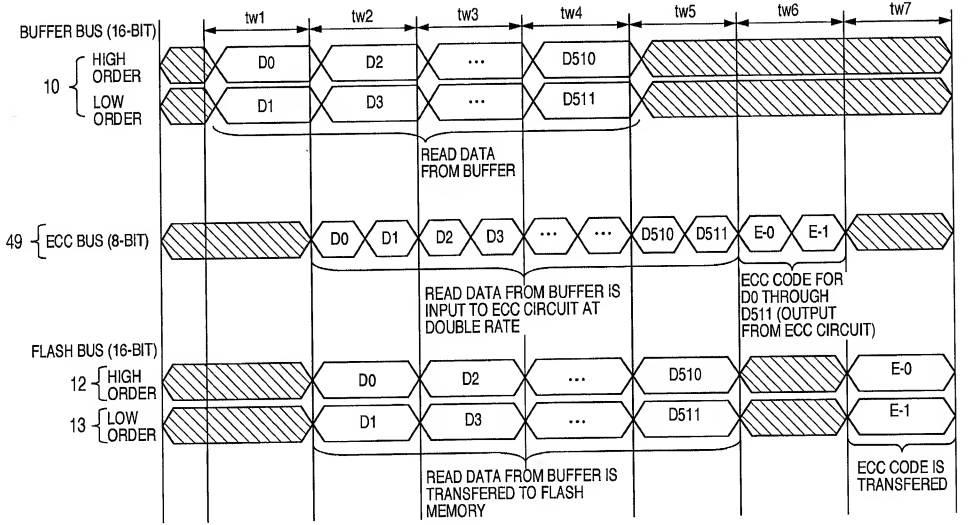

FIG.15

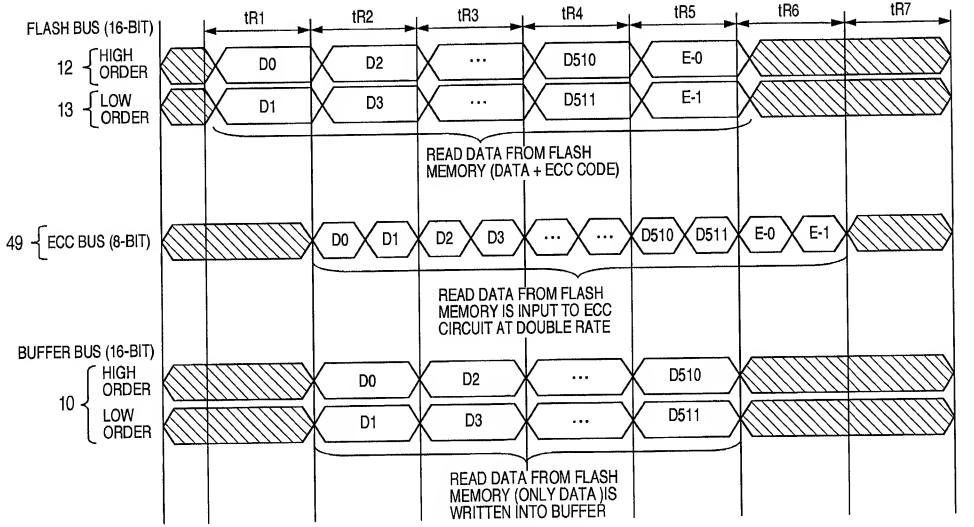
FLASH BUS (16-BIT)
12 HIGH ORDER
13 LOW ORDER
tR1
tR2
tR3
tR4
tR5
tR6
tR7
D0
D2
...
D510
E-0
D1
D3
...
D511
E-1
READ DATA FROM FLASH MEMORY (DATA + ECC CODE)
49 ECC BUS (8-BIT)
D0
D1
D2
D3
...
...
D510
D511
E-0
E-1
READ DATA FROM FLASH MEMORY IS INPUT TO ECC CIRCUIT AT DOUBLE RATE
BUFFER BUS (16-BIT)
10 HIGH ORDER
LOW ORDER
D0
D2
...
D510
D1
D3
...
D511
READ DATA FROM FLASH MEMORY (ONLY DATA)IS WRITTEN INTO BUFFER

FIG.16

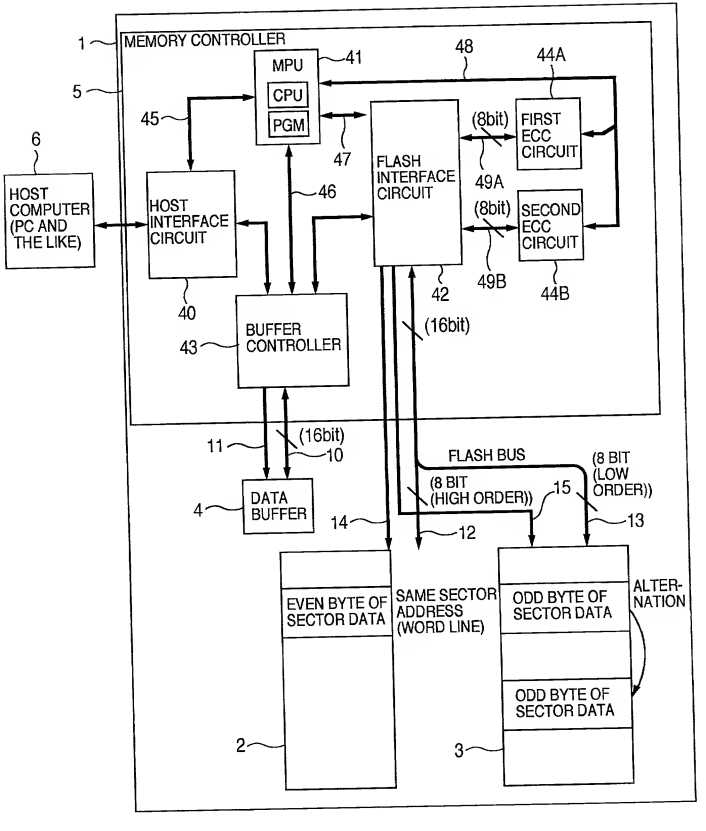

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FIG.17

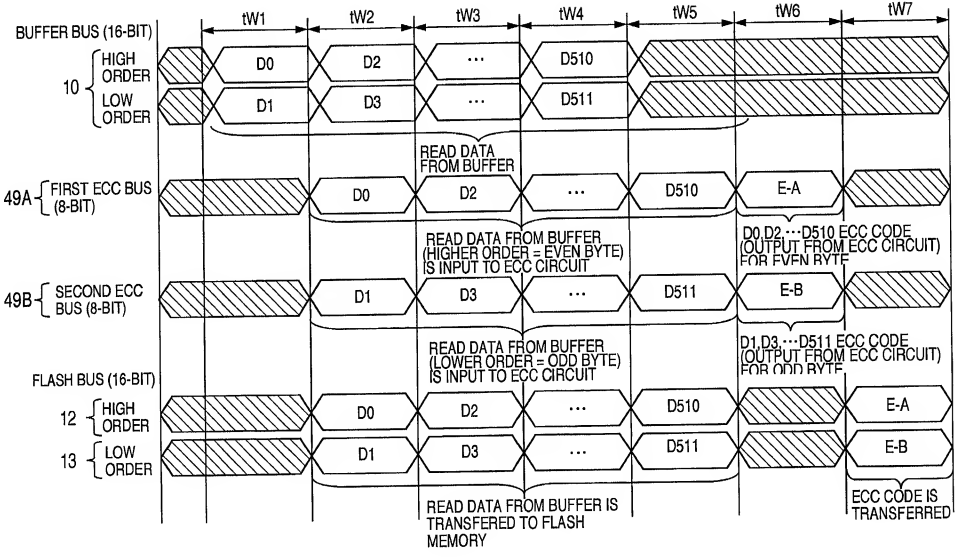

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FIG.18

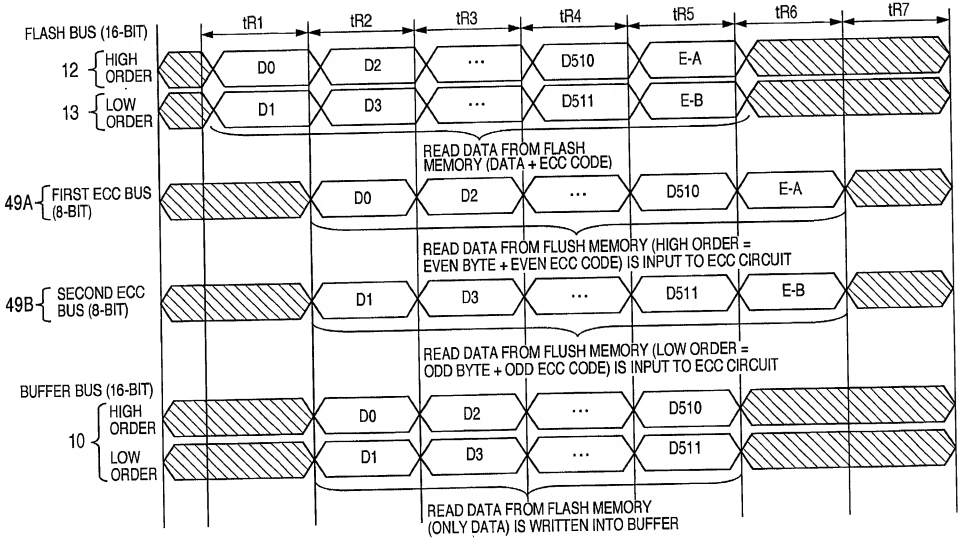
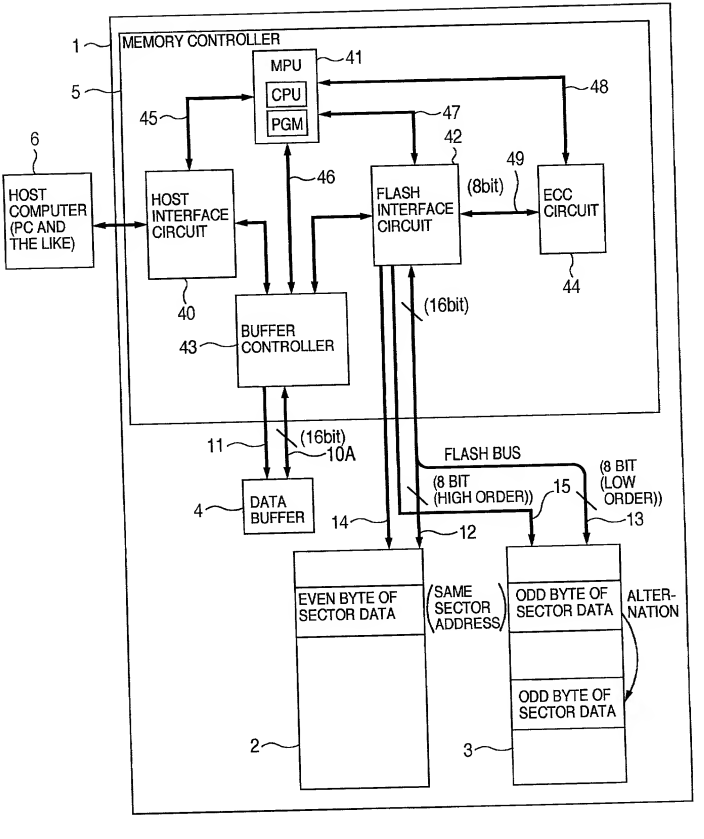
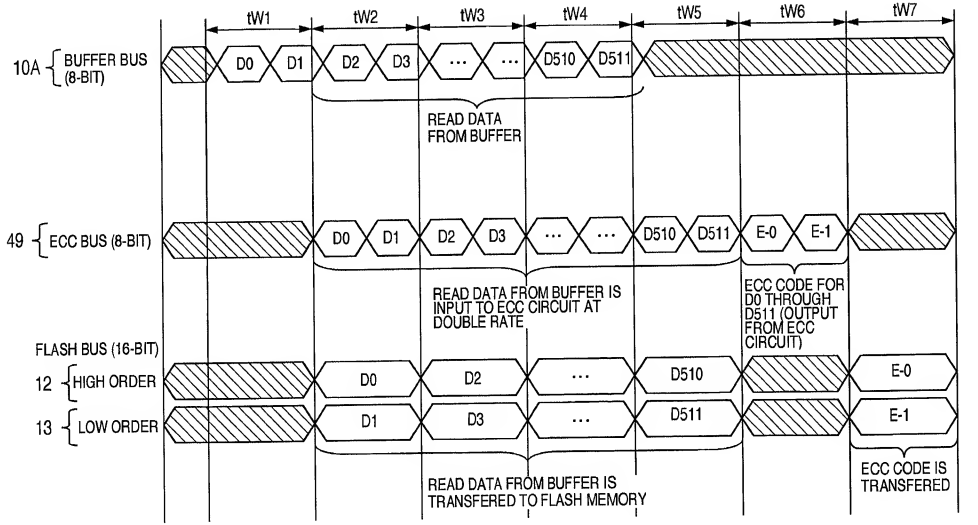


FIG.19



20070220:20053001

FIG.20


tW1
tW2
tW3
tW4
tW5
tW6
tW7
10A
BUFFER BUS (8-BIT)
D0
D1
D2
D3
D510
D511
READ DATA FROM BUFFER
49
ECC BUS (8-BIT)
E-0
E-1
READ DATA FROM BUFFER IS INPUT TO ECC CIRCUIT AT DOUBLE RATE
ECC CODE FOR D0 THROUGH D511 (OUTPUT FROM ECC CIRCUIT)
FLASH BUS (16-BIT)
12
HIGH ORDER
13
LOW ORDER
READ DATA FROM BUFFER IS TRANSFERED TO FLASH MEMORY
ECC CODE IS TRANSFERED

20220'20SE800T

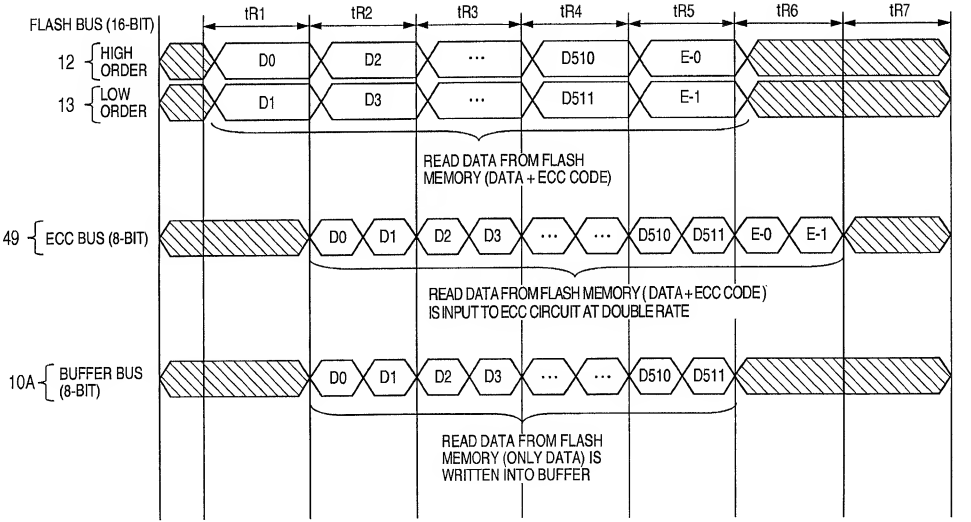



FIG.21